

How to build a 72Volt electric motorcycle

by **Stryker** on November 8, 2007

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intro: How to build a 72Volt electric motorcycle

No gas, no oil and almost silent. 72 Volts, 70mph of pure fun. This is how I built an electric motorcycle.



step 1: Why and how

I only work 3 miles from home but with gas prices getting out of control, I thought it would be great to have an electric vehicle. I've always wanted a motorcycle and decided that making an electric motorcycle would be a good EV project, keeping costs down, and be fun to ride.

This project took about 3 months of research and development (not counting waiting for parts to come in or help from a friend with the welding). All in all, it cost about \$3000 to buy and build. This may take a long time to pay off in gas savings, but if you add the fun of building and all of the environmental benefits, it was well worth the effort. With a top speed of over 70 mph and 10 miles per charge, this vehicle is perfect for me. The following instructable will not give you exact step by step instructions, but if you have some mechanical skills and welding ability you should be okay. A little knowledge of motorcycle maintenance wouldn't hurt, too. However, I just read the user's manual and learned as I went.



Image Notes

1. Custom electric motorcycle logo made by my brother. Thanks Ned.

step 2: Components and tools

Every motorbike is different but the basic components can be the same. Below is a list of the parts I used and where I got them, but you will have to do some research to figure out what fits your bike and requirements. Check out the photos at the bottom to see what I bought and the [EVAAlbum](#) for other electric vehicle projects.

Frame: I looked at many different bike styles and decided on a 1984 Honda Interceptor for a few reasons:

- 1) I like the style of bike, not a total crotch rocket but not a hog either, with room for batteries inside the frame.
- 2) The seller on Ebay was close to my house. And the bike didn't run, so it only cost \$600. If you have an old bike or someone will donate one then that's great--but for the rest of us, try the local paper, junk yards, Craig's List or ebay motors.

Motor: After reading other EV bike specs (and knowing that I wanted to go faster than a moped), I chose a 72V Advanced DC motor, because it's weight and dimensions were good for my frame. I ordered it online [thunderstruck-ev.com](#).

Batteries: I went with 6 Yellow Top Optima batteries from [remybattery.com](#) because they are sealed and have received great reviews. After making cardboard mock ups of the D23 model I realized that there was no way six full sized batteries would fit and still look good. I ended up getting the D51 model. Half the size and weight but also half the storage.

Controller: You have to match your controller to your voltage but the amperage is up to your budget. More amps = more power and more cost. It seems that there are only two real choices: Alltrax or Curtis. You'll have to decide for yourself, but I went with the 72V 450Amp Alltrax from [cloudelectric](#). Don't waste your time trying to build a potentiometer on an old throttle--just buy a pre-made one and be done with it. I got the Magura 0-5K Twist grip throttle from [cloudelectric.com](#)

Charger: You have to match your charger with your voltage but the speed of charge in Amps is also up to your budget. I went with a Zivan NG1 from [EVAMERICA](#) I have recently switched to six individual 3amp Soneil chargers to help balance the batteries.

DC/DC Converter: It's safest to run with a DC/DC converter and an extra 12V battery backup but motorcycles have limited space so I am only using the converter. I purchased a Sevcon 72V Input 13.5V output from [evparts](#) and it has working perfectly.

Fuses: You'll want to get a fuse that matches your setup. I bought model ANN 400 w/ holder from [EVAMERICA](#).

Contacto: This is a device that you hook up to your existing key ignition on 12Volts and it will close the loop so you get the full power to your controller. I bought an Albright SW-200 from [EVAMERICA](#)

Battery cable and connectors- I bought about 10 feet of 2 GA wire from WAL-MART and cut it to length. Using Lugs from [cloudelectric](#) I soldered and used heat shrink tubing on each end. I highly recommend battery terminal covers for safety.

<http://www.instructables.com/id/How-to-build-a-72Volt-electric-motorcycle/>

Instruments I chose an E-meter(Link 10) w/ Prescaler add on for 72V use instead of a bunch of different meters. As an added feature I wired up the ignition switch to the neutral indicator to show me when the bike was on.

Other parts

Wire - 12GA different colors and heat shrink tubing (large and small sizes)
Electrical tape
Wire connectors
Wire wrap

Tools

Basic shop tools are required such as a socket set, screw drivers,wire stripper, etc. Additionally a volt meter, metal grinder and crimper are used in this project.



Image Notes

1. This meter has multiple settings but I only use the volts.



Image Notes

1. Bought on ebay motors in non working condition. So don't yell at me about trashing a perfectly good motorcycle.





Image Notes

1. Alltrax makes a very nice speed controller with configuration software.



Image Notes

1. Just buy the throttle. It's not worth trying to make your own.

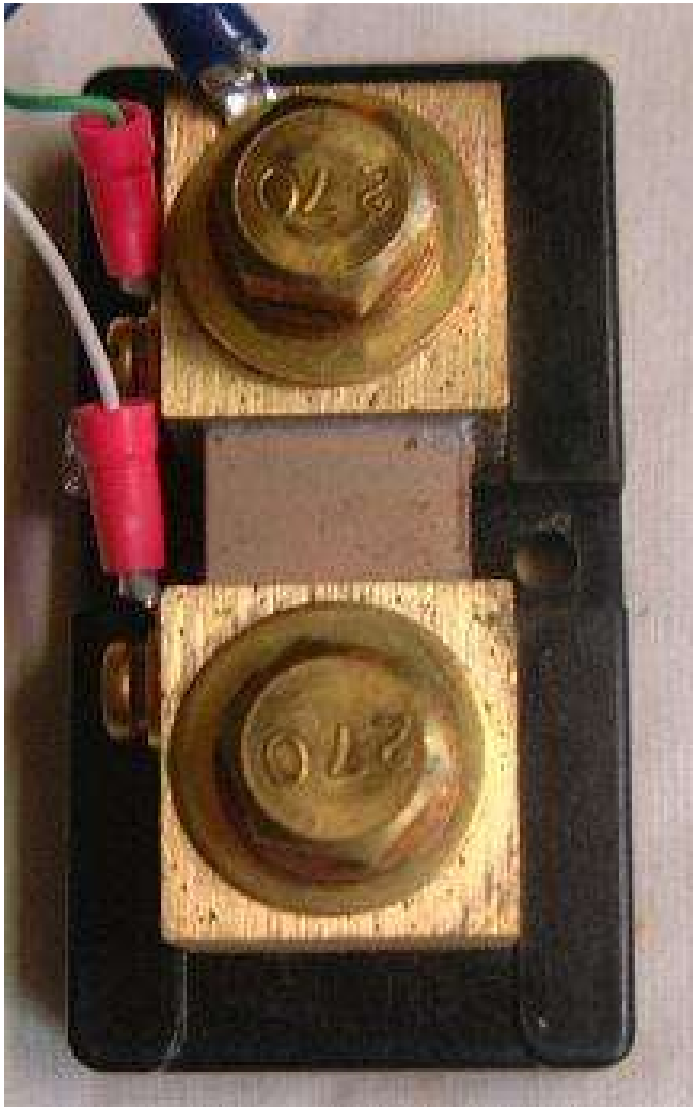




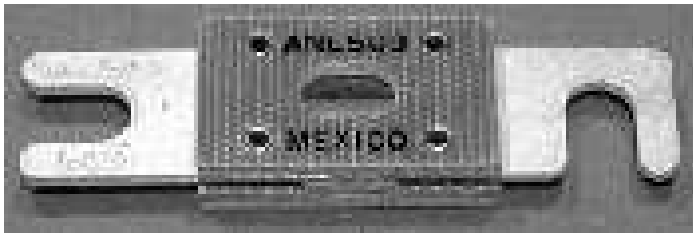
Image Notes

1. If you have the money get one good charger instead of trying to use multiple smaller ones.



Image Notes

1. DC/DC converter is very easy to install. Two wires in, two wires out.



step 3: The build

Start by removing all of those nasty internal combustion engine parts. Remove the gas tank and using your grinder or other cutting tool to cut out the bottom. This makes room for extra batteries or components. (*Make sure all gas is out before cutting*) Reference your owners manual so that you don't cut any necessary wires, and try to sell some of the parts to help pay for this project.

Next, make cardboard mock ups of all of your batteries and electronic components to see how and where things are going to fit. Take a look at my pictures to see how I fit everything, believe me that taking the time to make accurate cardboard mock ups is well worth the effort.

Now for the hard part. You need a secure battery box and motor mount. I had a friend weld it up for me and he did a fantastic job. From the photos you can see that he first strung up the motor to allow for minor adjustment to be made before cutting the motor mount plate. After that was cut he made a nice chain and sprocket enclosure with a door and welded them onto the frame.

Next he fabricated the battery rack and gave each battery a swing arm closure to give a tight fit yet still allow me to get them out easily. Half inch foam padding spacers are between each battery to help cushion the stack--but believe me, they aren't going anywhere. The last thing he did was weld in metal plates for mounting my electrical components.

After you get your motor mount and battery compartment all welded up, take some time to clean up the frame of your bike. I removed any rust spots and chipped paint that I could find. Then I used some metallic gray and black spray paint. This makes a world of difference and costs very little.

I made a fake gas cap and ran the power cord from the charger up the frame and out the top.

Now that you have all of the welding done and your frame looks great, let's install the electrical components and start wiring it up.



Image Notes

1. Moving six cardboard batteries is a lot easier than real ones



Image Notes

1. Used thin rope to hold up the motor in just the right spot, so accurate measurements could be made.

Image Notes

1. Motor mount welded in place



Image Notes

1. Battery rack has removable pins on each one to allow for a more snug fit and for easier removal of batteries.

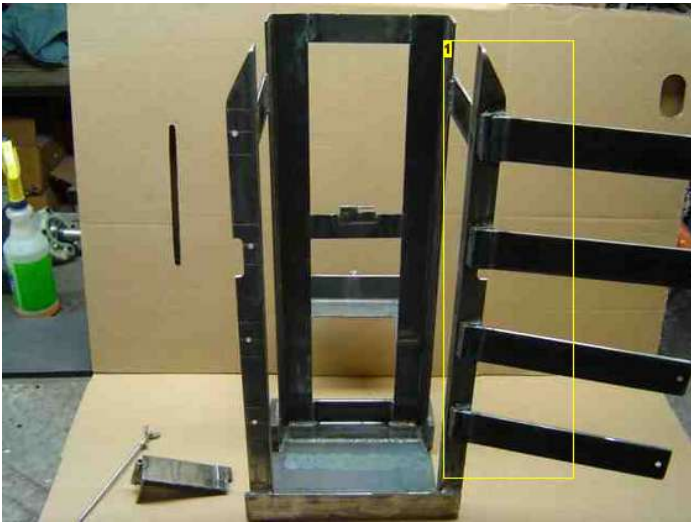


Image Notes
1. Optima batteries are sealed so they can be positioned in any direction.

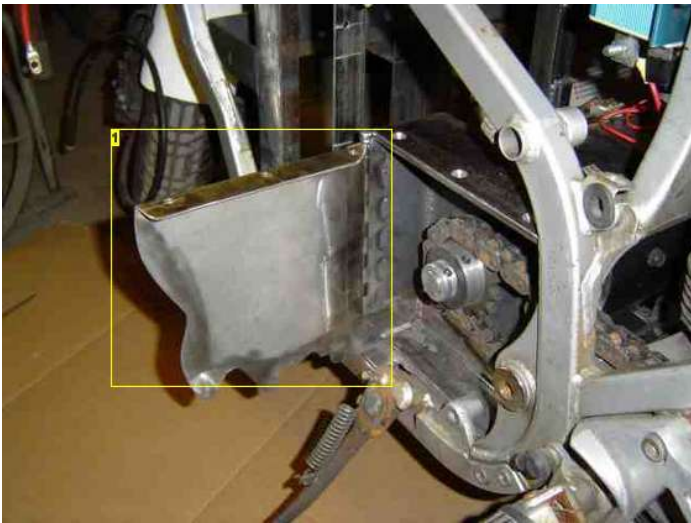


Image Notes
1. Sprocket and chain cover door swings open for easy maintenance.

step 4: Wiring

If I tried to explain where to connect every single wire I would get writers cramp. View the wiring diagram that I put together and let me know if you have any questions. This diagram should be pretty accurate to how I built mine, but obviously you are responsible for your project.



Image Notes

1. Speed controller
2. DC/DC Converter
3. Emeter 72V prescaler
4. 400 ANN Fuse
5. Shunt
6. Battery connector covers make things look nice and keep you safe.
7. Lock washers are a must.

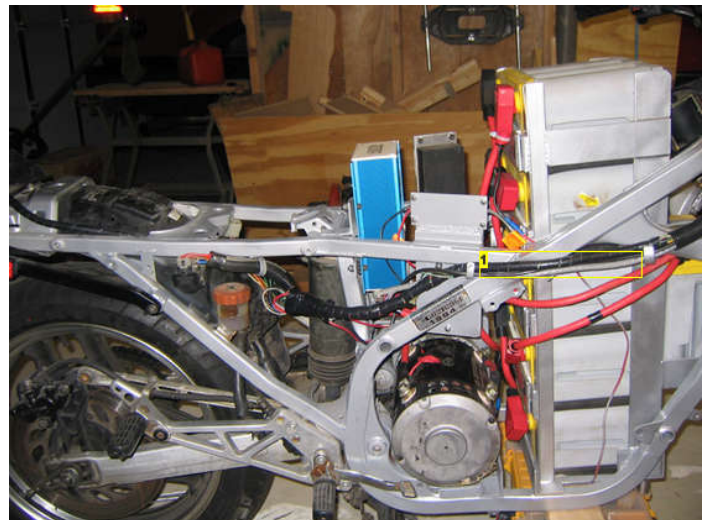


Image Notes

1. Albright Contactors SW-200 gets 12 volts from system and allows you to use your key to get full power.
2. 1/2 inch dense foam padding between each battery.

Image Notes

1. Wire wrap makes things look professional.

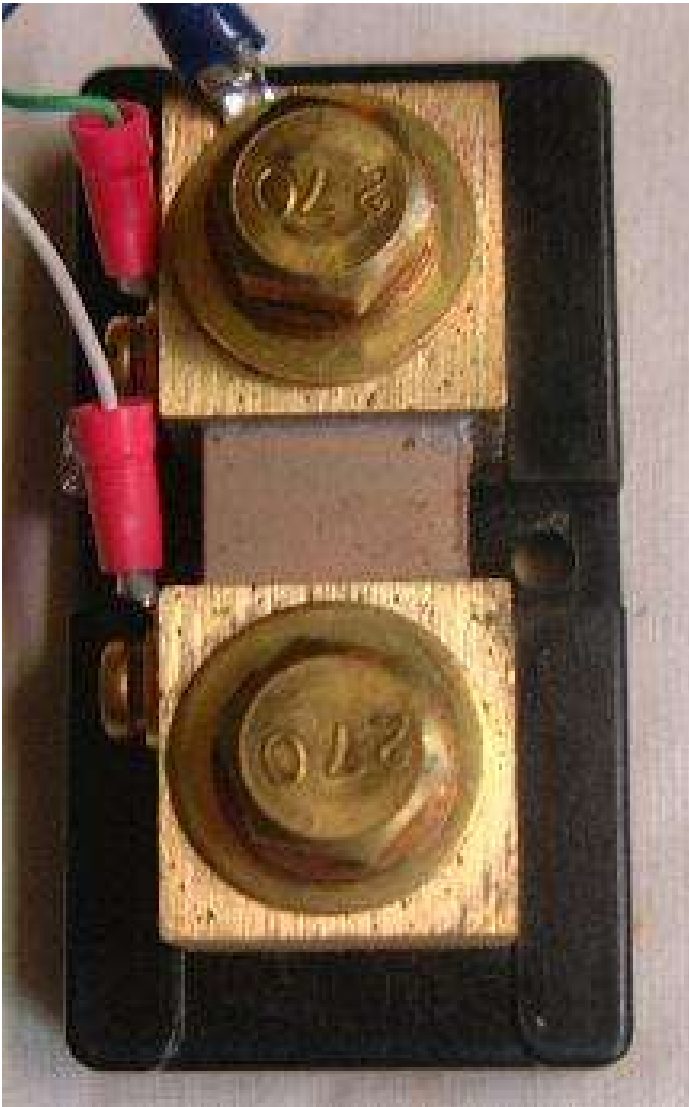


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1. Alltrax makes a very nice speed controller with configuration software.



Image Notes

1. Here is the E-meter nicely installed where the rpm gauge used to be. It will give you readings for Volts,Amps,Hours left and Time left.

step 5: Last few things

Double check all of your connections and tighten every bolt.

I wanted my bike to look as good as it rides, so I had all of the panels painted and custom graphics made up by [worldsendimages](#).

Using a serial cable and laptop, tweak the speed controller program for your riding preferences.

Lastly, I got the bike inspected and insured. (Be prepared for the dealership mechanics to swarm and hit you with a bunch of questions and jokes about failing the emissions test).

I know these weren't step by step building instructions, but that's because of the complexity of this project and variables in component use. My intention was to give you the motivation to build your own by seeing how I did it and make it easier by supplying the parts list and a wiring diagram.

For more photo's and a build commentary visit my website at <http://ben.cbccinc.com>.



Image Notes

1. Did my own prep work to save money but had them professionally painted.



Related Instructables



How to build a 96-Volt Electric Motorcycle by Kentucky-bum



Gomi Style - Electric Motorcycle Conversion (video) by sparkyrust



Portable Solar Generator on a bike trailer for Burning Man by veggiecycle



Homemade Halogen Bike Light by smegger



Putting A Car Horn On Your Bicycle! by frenzy



Simple LED Bike Lights by geeklord



How to Revive an Old Motorcycle: Save Money on Gas/Fuel! Cheap Ride! by skunkbait



Add Sound Effects to your Electric Motorcycle by bennelson



Comments

50 comments [Add Comment](#)

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Jamiecrazy2005 says:

Aug 9, 2008. 1:58 PM [REPLY](#)

Why is it that most think a transmission wouldn't be efficient on an ev motorcycle yes it is true that electric motors have almost constant torque and can reach very high rpms but i think that is one of the problems with getting any form of mileage out of ev motorcycles. To go faster u run the motor at a higher amp rating sucking more juice from the batteries. Using a tranny will allow u to run the motor at a low amp rate at higher speeds using less juice form the batteries. this would also save on motor life and overheating at high motor rpms. Electric motors due have a tendency to overheat and melt electrical components.



andrewl10 says:

Oct 21, 2008. 1:24 PM [REPLY](#)

I understand what you mean, but there's also a down side to that. A transmission is just one more thing loading down the motor, so you will still end up sucking some decent amps out of your battery, even at cruising speed. A good thing to remember when doing a conversion is Amps=Torque and Volts=Speed. Direct drive like this is something better suited for motorcycles, but not cars. (Kind of off topic, I know)



dillweed2 says:

Sep 11, 2008. 9:20 PM [REPLY](#)

The only benefit of a trans would be that it would cut the speed of the motor. The trans would also be extra weight and require more energy to overcome the drag from turning a trans (bearings and gear lube). Electric motors are not like a gasoline that requires more fuel at higher speeds. The electric motor will run at a slower speed with a trans, but will require the same amount of electricity as without a trans, plus the drag of the trans for a net loss.



Stryker says:

Sep 12, 2008. 6:59 AM [REPLY](#)

I was thinking about a variable speed pulley system for my next bike. The weight wouldn't be that much. If the amount of electricity used was the same wouldn't I get better starting power and top end speed?



msee says:

Sep 12, 2008. 7:39 PM [REPLY](#)

Full electric motor Torque can be available from 0 RPM up to rated speed, which is GREAT for EV's. Horsepower by definition is RPM x Torque, so peak HP is not available "off the line".

If properly designed, top speed should be limited by resistance loss and drag. A typical motorcycle and rider going 60-70 mph will need about 5 horsepower to maintain that speed on level ground. Drag is dependent on velocity-squared, so 10 horsepower should be able to get a motorcycle and rider up to 85-100 mph.

Let's assume a vehicle is designed to reach top speed at peak HP at peak motor RPM. A transmission would provide a better "holeshot". If you are designing a DRAG bike, I think you should definitely add a transmission. If you are trying for highest efficiency and longest range, I don't see how a transmission will really help.



dillweed2 says:

Sep 12, 2008. 10:23 AM [REPLY](#)

The reason a trans (or variable speed pulley) is used for gas engines is because the engine develops different power and torque at different RPMS. An engineer designs a vehicle to accelerate at a reasonable speed, have a certain top speed, and use a certain amount of fuel. A dc electric motor is different because it develops power / torque equally at all RPMS. When designing the system, you don't want to exceed the max speed of the motor, but other than that it will require more electricity to move the added weight and overcome the added resistance of any belts, pulley, trans, etc.



kiffer360 says:

Oct 17, 2008. 2:30 PM [REPLY](#)

this is completely unrelated, but have you people herd about the eestor capacitor? I just herd about it, and it looks amazing. just type in eestor in google, and no, I am not trying to sell anything.



wraithsqaud says:

Sep 22, 2008. 12:49 PM [REPLY](#)

is there an advantage to wiring the batteries in series and converting the voltage for the bike systems down instead of wiring them in parallel and converting the voltage up for the motor



dillweed2 says:

Oct 10, 2008. 8:34 PM [REPLY](#)

The batteries are connected in series, (pos to neg) to increase the voltage. Voltage is electrical pressure, comparable to PSI in a hydraulic system. The higher the voltage, the better efficiency and performance of a product. That's why you saw cordless tools go from 3V to 7V to 14V and now 18Volts. Wiring in parallel (pos to pos and neg to neg) is how you jump a car battery. Parallel increases the amperage or capacity of the system while keeping the voltage the same. Flashlight batteries are connected in series (a 5 cell would be 7 1/2 volts). That's why electrical companies transfer power in thousands of volts, less resistance is greater efficiency.



Stryker says:

Sep 22, 2008. 1:50 PM [REPLY](#)

I don't understand what you mean. But I'm no electrical engineer so I doubt I could answer it if I did understand.



msee says:

Sep 25, 2008. 7:16 AM [REPLY](#)

Assume 12V deep cycle batteries.

Series Connection

$6 \times 12 = 72 \text{ V}$

$72\text{V} \times 100\text{A} = 7.2\text{kW}$ (or ~10 HP)

Designing a motor/controller combination to handle this voltage and current range is pretty easy and relatively inexpensive. There are MANY currently available.

Parallel Connection

$1 \times 12 = 12 \text{ V}$

$12\text{V} \times 600\text{A} = 7.2\text{kW}$ (or ~10 HP)

Although a DC-DC converter can be designed to convert 12V 600A to 72V 100A, it will add significant cost and weight, and will reduce efficiency of the overall system.

A motor could be designed to use 12V 600A, but it too would be less efficient because...

Resistive losses are a function of $I^2 \cdot R$, so as current increases resistive losses go up FAST. The lower you can keep the current, the better. That is one reason why AC power is transmitted over the grid at very high voltages and then stepped down locally.



hawkeyejr says:

Jul 17, 2008. 4:50 PM [REPLY](#)

Did any one happen to think how much more efficient this "motor" cycle would be if the drive motor were installed where the engine crankshaft was and the clutch and transmission were retained. just a thought from some one who likes to take longer faster trips, and why not add(retain)the alternator, and recharge those batteries, when there's no load?



Silence says:

Jul 27, 2008. 12:36 PM [REPLY](#)

Alternator would hit the performance of the bike, whole thermodynamics thing i wont start on. For a variable speed motor, you dont really need a transmission since electric motors have pretty much constant torque and can reach very high RPM. Its optional but in the end it comes down to extra weight, valuable space and batery life.



wraithsqaud says:

Sep 22, 2008. 12:55 PM [REPLY](#)

depending on the skill level of the builder and how low you are trying to keep the weight regenerative breaking could be added to recover some of the energy normally lost in stop and go kind of driving. it might be a bit complex to incorporate into a bike



fearblind says:

Sep 4, 2008. 10:38 AM [REPLY](#)

I was curious what your range is on your battery from fully charged to completely dead?



Stryker says:

Check out my site for more details, but about 12 miles when the batteries where new.

Sep 4, 2008. 11:36 AM [REPLY](#)



fearblind says:

I actually ment the charge of the battery! I should have been more specific I am sorry... but curious at what voltage the battery is fully charged and what voltage you set the indicator to show dead?

Sep 5, 2008. 9:17 AM [REPLY](#)

I am looking to build an electric motorcycle completely from scratch with custom frame etc and want to get an idea of the range of a battery cell's ability to move the bike effectively and what voltages you used to set your F and E on the "fuel" gage if you will :)



msee says:

fearblind...suggest you research this site for details on batteries. Slightly out of date, but still useful.

Sep 9, 2008. 8:01 AM [REPLY](#)

<http://www.batteryuniversity.com/parttwo-35.htm>



msee says:

THANKS for posting your project for all to see ! ;-)

VERY nice conversion job. Even LOOKS like a real motorcycle! With the components you listed, calculations suggest you should be getting close to a 40 mile range. You stated only 10 miles between charges. Is that correct?

Aug 29, 2008. 7:38 AM [REPLY](#)



Stryker says:

It was over 10 when I first got the batteries, but since then they are taking less charge. I don't know what kind of calculations you did but I can assure you it doesn't go farther than 10 miles. I've been researching Lithium batteries which will make a great improvement. But until prices come down it's just not going to happen.

Aug 29, 2008. 8:54 AM [REPLY](#)



msee says:

Understood. My calculations were based on the full size batteries and generous efficiency estimates. My work commute is a 30 mile round trip, so I would attempt to build something similar if it could get 40 miles to a charge. The newest Lithium technology is really nice, but the cost is still way too high.

Aug 29, 2008. 12:41 PM [REPLY](#)



wonderbro says:

For everyone who wants to make an electric motorcycle visit electricmotorsport.com it has all the parts that you will need for this project.

Aug 25, 2008. 9:24 AM [REPLY](#)



SKINZ says:

it looks mint youve done a brillent job can you ride it on the road without a licence

Aug 2, 2008. 11:50 AM [REPLY](#)



Stryker says:

No you need a motorcycle license to ride this. It goes 70mph so you can't get away with saying its a moped or something like that.

Aug 3, 2008. 9:40 AM [REPLY](#)



jeff-o says:

Very nice work. I'm curious, did you price out NiMH or Lithium batteries? Obviously they would both be significantly more expensive, but with a longer runtime (ie. greater range). Also, was the inspection all you needed to get this bike declared street legal and insurable?

Apr 8, 2008. 9:44 AM [REPLY](#)



Stryker says:

I have been researching Lithium Polymer batteries for my next bike. They are very expensive but are so much lighter and last longer. So with the decrease in weight and recharging cycle life they might just pay off. Eventually... As for inspection I just took it to the local Honda dealer and they did everything as normal except emissions of course. :-) I think insurance classified it as a normal bike, but I'd have to check on that again.

Apr 8, 2008. 11:13 AM [REPLY](#)



ramedia says:

Keep an eye on Toshiba's SCIB batteries. They supposedly recharge in 5 minutes. This would be a big boon to electric bike builders and solve some of the range issues. These batteries were supposed to come out in March of this year according to the press release last dec., but I haven't seen them.

Jul 18, 2008. 4:08 PM [REPLY](#)



M-26-7 says:

Those things sound awesome, but from what I hear Toshiba's only giving them to companies, like ones making hybrid cars, you might be able to fenagle one or two out of them, but the cost would more than likely be completely inhibitive of any actual purchase.

Jul 24, 2008. 6:53 PM [REPLY](#)



DjProToJeeX says:

ya id like to hear what insurance gives for if any difference for a EVB

Apr 8, 2008. 12:10 PM [REPLY](#)



Stryker says:

I just looked it up and I have a regular motorcycle policy but only liability, no collision coverage.

Apr 8, 2008. 12:31 PM [REPLY](#)



DjProToJeeX says:

nice. I have a '05 gsx r1300 we are gutting for the hayabusa engine for a project car we are working on. I think instead of selling the frame i might make one of these. Just to see how it would turn out.

Apr 8, 2008. 12:49 PM [REPLY](#)



beff50 says:

why don't you add an alternator or something. if you have the money then a similar motor to recharge the batteries. then it would increase the rand buy a lot, despite how heavy it is.

Jul 23, 2008. 7:39 AM [REPLY](#)



uglymike says:

The biggest problem with that idea is you can only charge a battery when it is not discharging (you can't have voltage flowing both ways) so it won't charge while your accelerating or cruising. If you're running a brushless motor you can use a motor-controller with regenerative braking. This is the option used in electric and hybrid cars. Unfortunately a regen-braking does put force back on the motor and slows the bike (as opposed to coasting). The mass of the car works great for utilizing regen, but it slows the lighter bike considerably, greatly reducing it's efficiency. More careful and conscientious driving habits offer greater improvements in range than regenerative controllers on light vehicles like this.

One thing you could do that is similar is to run a simple 1/2 wave alternator with a regulator/rectifier and small 12volt battery instead of a DC to DC converter. It would cost considerably less, but the engineering involved makes the investment in the converter very appealing.

Jul 23, 2008. 7:53 PM [REPLY](#)



Phiber_Optik says:

Sorry, this won't work...it's the whole perpetual motion thing.

The bike will use more electricity to power the alternator than it will return to the batteries.

An alternator (generator) would work only if engaged as regenerative down hill.

Jul 23, 2008. 9:44 AM [REPLY](#)



misemono says:

could you put 2 small generators with armatures that spin from pressing against the wheels (kinda like those little gens that power a bicycle light) on each tire, so they can put some charge back into the batteries? Yeah, it would be a perpetual motion thing, but would it put enough charge into the batteries to give you a few more miles?

Jul 23, 2008. 4:36 PM [REPLY](#)



dillweed2 says:

No. None. Nada. The drag or resistance to run the little generators will require the motor to work harder and use more electricity. When used on a bicycle, the rider provides the extra energy needed to run the generators. A car engine requires a more fuel to run the alternator. Only a regenerative system will change forward motion of the bike back into electricity, but as mentioned by others, being able to coast will give you more range.

Sep 11, 2008. 9:05 PM [REPLY](#)



beff50 says:

im sure it would. but i realized that the procedure to make this whole thing work would be so complicated that it would not be worth it. but you could have a backup battery system and charge it like this. that that would bring us to a weight factor. but if your bike ran on li-on ni-hm then this idea might actually work. but there is also the space factor. so this might only work with an electric car.

Jul 24, 2008. 7:16 AM [REPLY](#)



Phiber_Optik says:

All generators have magnetic resistance and need energy to spin them to create electricity. Therefore, any generator, whether run from tire/wheel friction, a tiny windmill or otherwise will use more energy to spin them than they will return back to the batteries. This is a net loss.

Physics will simply not allow it to work. Even a little bit.

As I stated earlier, this would only work if used to capture kinetic energy from coasting down hill or coasting to a stop. Then it must be disengaged when the main traction battery/motor kicks in to power the bike.

Jul 24, 2008. 6:50 AM [REPLY](#)



Prophe50r says:

These ideas only apply if we are talking about a constant "recharge" system.

What if you used a caliper style braking system, but with rollers instead of brake pads, and used the resistance provided by the regenerative system ONLY while braking. The brake/regen system would not be mechanically attached to the drive system at any point UNLESS you actively want to slow down, you could still coast just fine.

The challenge would be how to keep the weight down.

Since you would already be using the hydraulics in the current brake system, that shouldn't add any weight. But you would have to design some fairly large calipers, and you would need either 4 generators, or a linkage system to transfer the mechanical energy.

Oct 3, 2008. 4:46 AM [REPLY](#)

It may also be worthwhile to use a true mechanical disconnect on the drive-train to allow you to truly coast.



dillweed2 says:

Oct 10, 2008. 8:07 PM [REPLY](#)

They already make regenerative motor systems, as a dc motor is a generator. This system will add money and weight and it works well with cars that have much more weight than a motorcycle. It would be way less complicated than what you suggest.



Stryker says:

Jul 24, 2008. 7:22 AM [REPLY](#)

Thanks guys for answering these questions. I don't plan on putting regen on my next one. It's just not worth it for motorcycles.



beff50 says:

Jul 23, 2008. 10:34 AM [REPLY](#)

i am not saying that it will completely keep the batteries fully charged. but i am saying it would make the bike go a lot further.



dillweed2 says:

Sep 11, 2008. 8:55 PM [REPLY](#)

It won't make it go farther. It will reduce the range. It is the whole perpetual motion machine thing. You can't get something for nothing. Phiber_Optik is exactly right.



beff50 says:

Oct 4, 2008. 9:56 AM [REPLY](#)

ok ok. i have thought about this for a long time. here is what i really meant by my idea. get Li-on bats. then add an extra 3 bats. and use the alternator to charge those bats. when your voltage gets low. flip a switch to disconnect some of the dead bats and connect the full ones, so then the 2 or 3 that were disconnected can get charged up. this would significantly increas your range.



dillweed2 says:

Oct 10, 2008. 8:08 PM [REPLY](#)

Let's say you have a 10 Amp alternator. The electric motor will require an extra 10 Amp draw to run the alternator, plus the additional amperage to overcome the bearings, alternator fan, any belts or gearbox to drive the alternator, and add in the resistance of the wire and you have a net loss. I don't know exactly what the loss would be, but it might an additional 1 or 2 amps to run the alternator. You would not gain ANYTHING! You would only make matters worse, plus the added weight of the alternator and the extra batteries that you could not use while they are being charged.

You can't get something for nothing. Even when a transformer is used to change a voltage up or down, you have losses when some of the energy is changed into heat from the resistance of wires. The idea of using a battery to run an electric motor turning an alternator or generator is a perpetual motion machine that has not been invented and in theory can never work. A regenerative system is the only way you can recapture forward motion on braking and return it to the batteries.



neardood says:

Jul 13, 2008. 6:32 AM [REPLY](#)

Oh man, that is AWESOME!!! I wish i had one.

Although i am doubtful of the resources used to make all the parts (batteries containing toxic chemicals, welding, electricity to charge/used in production) will outweigh the co\$t of petrol, and thus enviroomental benifit.

Keep up the good work, and im looking 4WD to you're next creation



ramedia says:

Jul 18, 2008. 3:49 PM [REPLY](#)

You are assuming your cost on your current fuel consumption is the price you pay at the pump. Factor in things like \$700 billion dollars to fight wars over access to oil in the middle east, and you'll get closer to the cost of your current fuel consumption. The true price of gas is probably about \$500 a gallon when you factor in foreign policy and reversing the damage to the planet costs.



Matt D655 says:

Jul 17, 2008. 6:07 PM [REPLY](#)

Thats actually A pretty good idea no pollution :)



Body4Change.com says:

Jul 15, 2008. 10:56 AM [REPLY](#)

Is there some type of formula to know how long the batteries will last? I want to put a 1000watt 36v motor on my bicycle. I have 3 12v 3.5AH batteries and I was wondering if they would run it long enough to be worth buying the motor.

TIA



Spokehedz says:

Jul 17, 2008. 8:17 AM [REPLY](#)

I would need to know how many amps your motor draws at max load but we can work out using perfect values...

$W / V = A$ or $1000w / 36v = \sim 27Amps$

your batteries can supply 1 amp @ 12v for 3.5 hours. Since they are in series, you don't get any more MAh out of them, just volts. So electrically speaking, your battery pack can supply:

1A @ 36v for 3.5 Hours (210 Min)
2A @ 36V for 1.75 Hours (105 Min)
4A @ 36V for .87 Hours (52 Min)
8A @ 36v for .43 Hours (25 Min)

16A @ 36V for .21 Hours (12 Min)
32A @ 36v for .10 Hours (6 Min)

All values are approximate. Also, amps go up and down depending on load (more weight == more load) so this will also be a factor.

Also, on a bike, you can pedal to get up to speed and use the motor to just keep you rolling--a lot less energy used.

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